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THE

OBJECT AND ORDER

OF

MEDICAL STUDIES.

BY

JOHN HUGHES BENNETT, M.D., F.R.S.E.,
OFESSOR OF THE INSTITUTES OF MEDICINE, AND OF CLINICAL MEDICINE IN THE
UNIVERSITY OF EDINBURGH.

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I addressing a few words of advice to the medical students o cotland at the commencement of an academical session, there are any subjects to which we might direct their attention, such as the cessity of those habits of diligence and regularity which are so dispensable for the perfect attainment of any art or science; the portance of the profession of medicine in its practical, social, or litical bearings; the advantage of keeping alive that enthusiasm, d those high aspirations which constitute in youth the chief sti-ulus to exertion; the consideration that our days of studentship nstitute the most important epoch in our lives; and the caution quired by the conviction that, for the most part, it is then our ture character as men of honour, truthfulness, and probity is rmed. Hoping that all these topics will receive mature consi-ration, we shall content ourselves with pointing out what we lieve to be the true object and order of medical studies. We e induced to do so in consequence of having observed too many stances where an ill regulated education, a confusion in the plan proceeding, and an unacquaintance with the distinction between hat is essential and what is non-essential, has tended to retard d even to ruin the career of several young men who were other-ise distinguished for considerable aptitude and ability.

In the outset, then, we would especially endeavour to impress pon those we now address, one important fact, namely, that they e MEDICAL students, and that as such their ultimate object is to quire an art, or, in other words, a knowledge of all those means which they are qualified to minister to the prolongation of life d cure of diseases. It is not for them to become natural or moral ilosophers, chemists, histologists, zoologists, or botanists, although these subjects, if wisely studied, will, by inducing habits of exact observation and sound reasoning, be of the most essential service to them as medical practitioners. Neither is it for them to attempt the acquirement of all the knowledge that the different professors they attend, teach in their particular departments. But what is expected of them, and what they must endeavour to obtain from the whole series of studies, is such a sum of learning and such an available kind of information, that they may undertake the serious duties of a medical practitioner with credit to themselves and advantage to the public. This is the great object which should never be lost sight of, from the beginning to the end of their medical studies.

No general observations are applicable to every individual, and he who proposes spending a portion of his student life in the Scottish schools, will find no difficulty in following any of the classes he may find necessary. In Scotland, a young man generally commences his medical education at the age of 17 or 18 years, and spends four years in the acquirement of professional knowledge. It is to him, and in reference to the proper employment of these four years—a time short enough for the object in view—that the following remarks are more particularly addressed.

The first duty to which every medical student should attend, is to draw out a well considered plan of the order in which he is to study the various subjects contained in the prescribed curriculum—the hours necessary for attendance on classes and the time at his disposal for other pursuits. This general plan, when well considered and arranged, ought to be carefully followed, although it may receive a few modifications, additions, or subtractions as time advances, with the view of meeting particular wants or requirements in individual cases. What is especially necessary to be understood is that a thorough knowledge of some things is essential, whilst only a general knowledge of others is necessary. The first essential subject to be studied is Anatomy. This truth, which is sure to force itself upon the student sooner or later, is unfortunately one which often fails to impress itself upon him at that time when most likely to be useful. Anatomy, indeed, is, as it were, the alphabet of his studies: it is the *sine qua non*, without which all other kinds of study are perfectly useless. Medical, like most other forms of education, consists of a series of steps, each of which must be mounted in regular succession. There must be no leaping over in this case. Hence it is necessary to be convinced that the more earnestly Anatomy is cultivated during the first year by means of lectures, demonstrations, reading, but above all by dissections, the more thoroughly will the student be prepared for, and the more easily will he prosecute his subsequent studies.

Another important subject is chemistry, which teaches a knowledge of the elementary composition of bodies, and of the method in which combination takes place between them. Indeed as Medine progresses, it becomes the more evident that Chemistry, par- cularly organic chemistry, must play a chief part in causing its lvancement. Those who may feel ambitious of assisting in this eat work, should pay marked attention to a science, on the de- elopment of which physiology and scientific medicine are so greatly ependent.

Both Anatomy and Chemistry should be studied during the first inter session, and it will be well for the student to attend along ith them, a course of Natural Philosophy. Of the three subjects, natomy should be considered as the chief one, and every thing se should be regarded as subordinate to it. There will be ample me, however, for the study of chemistry, while by attentively fol- wing the lectures on Natural Philosophy, with only occasional ference to books, a sufficiency of that subject may be acquired.

The summer should be principally devoted to the furtherance of natomical knowledge by means of dissections, and by studious tention to the demonstrations and the course of comparative ana- my. Practical Chemistry should be followed in the laboratory. ither Natural History or Botany should also be attended to, care eing taken that neither of these agreeable studies interfere with at all-important subject, Anatomy, which, during these three onths, should be strenuously and energetically pursued, in order that eparation be made for the next great step in medical education.

There seems to be a principle in the human mind which seeks for rational causation, or an explanation of the phenomena it observes ; id hitherto we have supposed the student to have been busied with iatomical and chemical facts. He has next to ascertain the theory generalisations which are derivable from them. This constitutes e course of the Institutes, which comprises a systematic considera- on of histology, physiology, and some parts of pathology. We eed not dwell upon the necessity of theory, for the mind, and pecially the young mind, is only too prone to rush into it. It is ot so much theory itself, as *correct* theory—that is, theory which nbraces all known facts—that is so much to be desired. Indeed othing is more necessary than early to acquire the habit of check- g rash speculation, and that proneness to crude and imperfect hypo- esis, which characterises the infancy of knowledge alike in the urly history of the world, and in the early history of each in- vidual. One of the most certain modes of accomplishing this is gidly to separate fact from theory, to do which accurately in the er advancing state of knowledge is much more difficult than ie tyro may at first sight suppose. A fact may be defined, as iat which is obvious to the well cultivated senses of the observer. e say well cultivated, because the senses themselves require to be lucated before they can receive proper impressions. Here indeed es the difficulty, for what is obvious to the sight of an experienced server may be overlooked by the student ; the sound which is heard y the one is inaudible to the other ; what the first feels distinctly is not tangible to the second. The acquirement of facts therefore must be commensurate with a proper cultivation of the senses, whilst a correct theory will depend upon combining this with just reasoning power and strength of mind. Both of these essential parts of education require constant practice, and hence it is that personal investigation (as in dissection) is necessary for the one, whilst severe thought, revolving mentally reasons for and against, and, above all, discussion with others are so essential for the other. Those who take every thing upon trust—who do not look, hear, or feel for themselves can never be good observers, and their range of facts is limited—while such as do not think or reason, however acute they may be in observation, can never make any real progress in scientific study.

With regard to improving the mental powers and that critical acumen so necessary for separating truth from falsehood, there is one method which we have no hesitation in strongly recommending to the student. We allude to the benefits to be derived from constant attendance on a well conducted debating society. Of all such institutions the Royal Medical Society of Edinburgh may be considered as a model of excellence, and it is one of which the students of that University have justly been proud, for the long period of 120 years. Similar societies, we believe, exist in Glasgow and Aberdeen. These institutions conjoin the advantages of an excellent library and reading room; an intercourse with the most industrious and intelligent students; an introduction to the mode of conducting public meetings and discussions; the means of obtaining fluency of speech and perspicuity of language; an opportunity of concentrating one's knowledge on those points which are the subject of discussion; of bringing forward in the form of a communication the results of individual reading, observation, or research, and above all, they animate to that legitimate and honourable endeavour to obtain distinction, which is itself a strong proof of existing excellence, and the best stimulus to future exertion.

But to return to our plan of education. Whilst during the second year every effort should be made to arrive at powers of generalisation, the student must hold fast and extend his knowledge of facts, and hence during this period he again attends the class of anatomy, and continues his dissections. Now also his knowledge of facts will commence to take a new direction, as he must attend lectures on Materia Medica and Therapeutics, whereby a knowledge of the action of drugs, and other remedies, is to be acquired. He must further attend systematic surgery, and so obtain a general notion of external diseases. In doing so he will observe how necessarily operations on the body are connected with a knowledge of anatomy, and this study having been hitherto general ought now to be directed by a surgical aim. Thus every thing depends upon the manner in which the first year has been spent, for if anatomy be wanting, surgical details cannot be understood, and the result will be that instead of the attention being concentrated chiefly the study of physiology, and obtaining just views of function, the d will be perplexed, an attempt will be made now to learn the s that ought to have been already mastered, the ideas of theory l be vague and confused, and at the end of the session, instead eing ready to take advantage of the summer three months, the dent will find it necessary to pause, or even to retrograde, in the scribed course.

During the second summer Botany or Natural History should be ended; and, in doing so, the student should resolve on making nself master, at this time, of as much of either of these sciences as can accomplish.[1] Here, again, if he has made himself tolerably uainted with the general laws of physiology in the course of the vious session, he will readily perceive how either subject bears on his general course of study. Whilst attending botany or ural history he should assiduously extract from the lectures, all facts and sound theory he can, and add them to his store of owledge, placing them, with natural philosophy, amongst the ful but non-essential parts of study. During this summer, also, should commence, if he have not previously done so, attendance the hospital, enter on a course of practical pharmacy, once more sue practical or analytical chemistry in the laboratory; and, if can, occupy some hours in dissection, of which it is impossible to e too much, as thereby he will keep up his knowledge of tomy.

We now arrive at the third year in Medical Education, and at at may be called the third essential step in the student's onward gress. This consists in directing his chief attention to hospital ctice. Many Scotch students, indeed, first enter an hospital at s time, but we cannot too urgently advise them to take out a per- ual ticket for hospital attendance at the commencement of their dies. Not that during the first two years the tyro should make principal subject of attention, but that he may have the right of ering the wards, of habituating himself to the sight of disease, of ing important operations, and so gradually and insensibly prepar- himself for the future. It is at the commencement of the third r, however, that hospital study should assume the chief place in system of education, and he will be wise never to let it afterwards d an inferior position. His object in attending an hospital should while perfecting himself in observation, while extending his owledge of facts, and connecting them with the principles he acquired, to obtain what is called experience and practical tact, ind of knowledge that cannot be obtained from books or lectures, l is only to be acquired at the bed-side. Its value cannot be too hly estimated, because, as the theory or science of medicine is im- rfect, its shortcomings and redundancies can only be remedied by

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It is a matter of no importance whether botany or natural history be ended first, but it is of great consequence to the comfort and general advan- e of the student that they be not studied at the same time.

continual observation and experiment, such as the wards of an hospital present us with. Now, therefore, the student should commence the serious study of disease, at first in the surgical wards, where it is external, and directly presented to the sight, or the other senses; and, secondly, in the medical wards, where it is internal, and more a matter of inference and correct reasoning. This latter is generally done in the fourth year. But whilst engaged in acquiring experience, the knowledge of facts and theory should be kept up and extended. Many will further be obliged to follow a second course of systematic surgery, and this should constitute now the chief subject of study, especially as clinical surgery, and carefully watching surgical cases in the hospital are also essential. In addition, a systematic course of the Practice of Physic should now be attended, without, however, at this time, doing more than deriving from it a general knowledge of internal diseases. In short, during this third year, the student should take care to add to his previous knowledge a good acquaintance with Surgery and the Materia Medica.

During the third summer session, the student should pay attention to Dispensary practice, continue his attendance on the hospital wards, surgical or medical, according to the nature of his requirements, and attend one or more of those special classes which are found in every great school of medicine.

The fourth and last year should be entirely devoted to practical studies, the chief being Practice of Physic, Clinical Medicine, and Midwifery, with careful observation of cases in the medical wards. In summer, the course of Medical Jurisprudence must be followed. The student should also again attend the Dispensary, treat cases for himself, under the eye of a good practitioner, and pay attention to Practical Midwifery. During all this time, while extending his powers of observation and his experience, theory should be advanced to its farthest limits by the acquirement of a true pathology. At this time, one of the most important subjects to attend to is morbid anatomy, as studied at post-mortem examinations. For, if descriptive anatomy be useful to surgeons, morbid anatomy and general pathology are infinitely more useful to physicians. Indeed, considering how few operations any one student may have occasion to perform, while every practitioner, whatever be the sphere of his practice, has to treat alterations in the structure of various tissues and organs, the importance of morbid anatomy cannot be too strongly urged. Moreover, there are few medical men, who are not at some time called upon to open a dead body, and report upon the morbid appearances observed in reference to some legal investigation. His power of discharging this duty well, will entirely depend upon his previous experience in morbid anatomy; on having seen many well conducted *post-mortem* examinations, and on having carefully handled and examined the diseased parts. Not only may his reputation among his fellow-citizens be gravely affected by his conduct on such an occasion, but the vindication of innocence or the de-

ion of guilt, the lives of the accused, and the satisfactory accom-
hment of numerous judicial inquiries, may hang upon his correct
gment. How culpable, therefore, the man who, knowing his
ire responsibilities in these things, habitually neglects the *post-*
tem examinations of a large hospital!

uring this last year of study, perhaps there is no one thing
ch a medical student should more assiduously practice himself in,
n making careful records or histories of those cases, which he him-
sees under treatment in the medical wards of an hospital. For
purpose he ought constantly to carry a note-book with him, in
ch he should enter methodically all the facts of every new case
t enters, the prescriptions for treatment, and all the changes
ch may subsequently occur, including the results of *post-mortem*
minations. The taking such notes not only impresses facts on the
d, but imperceptibly induce more careful habits of observation,
more accurate powers of reasoning with regard to them—it
verts what would otherwise prove merely a monotonous duty into
tudy of great interest, whilst the cases themselves will consti-
in after life not only a pleasing memorial of hours well em-
ved, but may often be consulted with advantage when more ex-
ence has been subsequently acquired in medical practice. Most
lical men who have attained eminence in their profession, have
n early period of their lives, been great case takers.

n addition to those branches of instruction which are considered
erative, some students will further avail themselves of special
ses, according as their time and means allow, and in pursuance
he particular direction in which their intended practice points.
is, in most of the large schools of medicine throughout Europe,
re will be found extra means of becoming practically acquainted
n comparative anatomy, histology, operative surgery, analytical
mistry, ophthalmology, stethoscopy, pathological anatomy, in-
ity in a well-conducted asylum, etc., etc.; and such special
rses are calculated to give a greater impulse to individual study,
render it more perfect than may at first sight be imagined.

n the sketch of medical education now given, it has been our
eavour to point out, that there are three essential parts,—1st,
s; 2d, theory; and, 3d, experience. It is by the combination
these three divisions of knowledge—by an appreciation of the
antages to be derived from each—by correcting the faults inhe-
t in one by proper application of the others, that the student may
expected at length to obtain just views of the science and art of
licine. He will, we trust, also see the importance of studying
se three divisions in their proper order. Indeed, on this point
re can be no doubt or difference of opinion. For if any one
mpt to master theory without an acquaintance with facts, or en-
vour to profit by experience without any general notions of
lth or disease, we need scarcely say, that very gross ignorance

and professional incompetency must be the result. Indeed, it is to the imperfect education, arising from undue attention to one or more of these subjects, from a limited acquaintance with facts, or from a too theoretical disposition uncontrolled by experience, that we may ascribe the ridiculous doctrines which have originated among ignorant practitioners, and been spread amongst a still more ignorant and credulous public. To the student, order and method at the commencement will save him time and labour. However hard and dry the toil at first, in the end he is sure to be rewarded by the consciousness of time well spent and labour properly directed. How often have we seen a student, in his fourth and last year, instead of zealously deriving benefit from hospital attendance, and feeling interested in the post-mortem examinations, deserting the wards and pathological theatre, in order to follow some elementary course of anatomy, or of chemistry? He feels convinced too late, that what *must* be done, had better have been accomplished long before, and that, in order to acquire elementary knowledge, he is under the necessity of sacrificing that precious experience, which he may never again have the opportunity of obtaining. We trust the observations now made, will at least guard our young friends from this danger, and impress upon them the importance of acquiring, in their proper time and order, elementary facts, correct theory, and personal experience. We would say to them—determine from the first to employ your faculties honestly in the acquirement of sound instruction. Let your aim be directed to a thorough knowledge of your responsible profession, and you will have nothing to fear from examinations. Above all, avoid those attempts to burden the memory, and those artificial systems of acquiring a parrot-like information, into which the base and interested endeavour to entrap the unwary.

A mind so educated and regulated will not be likely to go astray, and its possessor, while alive to the necessity of following the progress of the science and art of medicine, will in this manner best learn, amidst the multitude of suggestions, the number of theories and the opposing statements that may perplex him, to reject what is worthless, and only adopt what is truly useful. He will despise the miserable vanity of announcing what is new, without a scrupulous regard to its being correct. He will, while retaining the right of thinking boldly for himself, not forget that observation is difficult, theory imperfect, and experience fallacious. He will not, therefore, rashly substitute his own authority for that of those whose knowledge is more extensive, or commit himself to the ephemeral doctrines of the day, by which a few otherwise respectable men have lost their professional reputation. He will remember, that the conclusions of youth are almost always modified by the experience of age, and that the wisest and most eminent men of science have given the best proofs of a solid understanding, by the readiness with which they have acknowledged their own ignorance.

In conclusion we have again to repeat, that the order of medical study we have recommended, seems to us the best applicable for the student in Scotland, who dedicates four years to the acquirement of sound professional knowledge. But where the time allowed is necessarily shorter, or when it is important to pass the examination of a special board which has issued imperative regulations as to the order, as well as the subjects of study, care must be taken to modify them accordingly.

We append, 1st. A maximum plan of medical education for a student who dedicates four years to the study, has ample means, and desires to obtain first-class honours. 2d. A minimum plan of medical education for a student who can only dedicate three years o the study, and who only wishes to pass the College of Surgeons. Both these plans are mere general guides, admitting of considerable modifications.

PLAN OF MAXIMUM COURSE OF STUDY, OCCUPYING FOUR YEARS.

FIRST YEAR.

Winter	Summer.
Chemistry.	Botany, or Natural History.
Natural Philosophy.	Practical Chemistry.
Anatomy.	Dissections.
Dissections.	Comparative Anatomy.
Anatomical Demonstrations.	Anatomical Demonstrations.

SECOND YEAR.

Materia Medica.	Natural History, or Botany.
Surgery.	Dissections.
Dissections.	Anatomical Demonstrations.
Anatomy.	Practical Chemistry.
Institutes.	Practical Pharmacy.
Anatomical Demonstrations.	Hospital Attendance.
Hospital Attendance.	

THIRD YEAR.

Surgery.	Histology, Opthalmology, or other special classes.
Materia Medica (if necessary).	Hospital Attendance.
Institutes (if necessary).	Clinical Surgery.
Practice of Physic.	Dispensary Practice.
Dissections.	
Hospital Attendance.	
Clinical Surgery.	

FOURTH YEAR.

Midwifery.	Medical Jurisprudence.
General Pathology for M.D., Edin.	Dispensary Practice.
Practice of Physic (if necessary).	Practical Midwifery.
Hospital Attendance.	Stethoscopy, Morbid Anatomy, or other special classes.
Clinical Medicine.	Hospital Attendance.
Post-mortem Examinations in the Pathological Theatre.	Clinical Medicine.
Occasional attendance on an Asylum for the Insane.	

PLAN OF MINIMUM COURSE OF STUDY, OCCUPYING THREE YEARS.

FIRST YEAR.

Winter.

Chemistry.
Anatomy.
Dissections.
Anatomical Demonstrations.
Hospital Attendance.

Summer.

Botany.
Dissections.
Anatomical Demonstrations.
Practical Chemistry.
Hospital Attendance.

SECOND YEAR.

Surgery.
Anatomy.
Institutes.
Dissections.
Anatomical Demonstrations.
Hospital Attendance.
Clinical Surgery.

Practical Pharmacy.
Dispensary Practice.
Hospital Attendance.
Clinical Surgery.

THIRD YEAR.

Materia Medica.
Surgery.
Practice of Physic.
Hospital Attendance.
Clinical Medicine.
Post-mortem Examinations in the Pathological Theatre.

Medical Jurisprudence.
Midwifery.
Hospital Attendance.
Dispensary Practice.

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